8/6/02 - Final

Stukel-Hill Allotment - #0828
Rangeland Health Standards Assessment (RHSA)

Introduction/Background

The Stukel-Hill allotment (#0828 - also referred to as the Hill allotment) is located within the west-central portion of Stukel Mountain, just east of the main Stukel Mountain ridge. *(Picture to the left is looking from the east face of the main ridge east and down into the center of the allotment. Open areas on slope in background are a mixture of 1936 burn and recent prescribed burning.)* Stukel Mountain lies about 8+ miles southeast of Klamath Falls, Oregon. The Hill allotment is comprised of 960 acres of public land oriented in a long, narrow strip (3 3/4 mile long and 1/4 to 3/4 mile wide) that incorporates almost no private lands except at the south end of the allotment (see map). This allotment is leased to Hill Land & Livestock Company who own the recognized base property at the south end of the mountain. According to documentation in the files, the Hill family (a.k.a. Hill Brothers in the past) has had the grazing lease since closely after passage of the Taylor Grazing Act in 1934; the Hill Brothers made application in December of 1934. This is probably the oldest continuous lease to one family in the KFRA. At the time of lease application, the submitted records indicate that the family (the parents of the Hill Brothers) had been grazing the area since 1887.

Like the rest of Stukel Mountain, much of the Hill allotment is steep, mountainous, and thickly vegetated with pine-juniper/shrub communities, though there are smaller intermingled openings of shrub/bunch grass vegetation. Because of this, a significant amount (maybe about a third) of the lands are marginally useable to cattle. The allotment is essentially the lands comprising a canyon known locally as Pine Creek, though not named as such on topographic maps. There is a fence between Hill and the Jeld-Wen (#0822) allotment neighboring to the east. Similar to most fences on Stukel Mountain, these fences are largely dysfunctional and/or hard to maintain due to topography, down trees, snow loads, and damage from the high public use of the area. There is no fencing between Hill and the Stukel-Coffin (#0812) allotment to the west; topography acts as an effective "fence" for most of the shared boundary. The allotment has two stock watering facilities - Hill Reservoir in the center of the allotment (T40S, R10E, Section 14 NWNW - pictured above) and the reservoir just north of the fenced aspen exclosure (Section 11, SWNW). The latter water is shared with allotment #0822.

The existing grazing lease on the Hill allotment is for 60 AUMs with a season of use of 5/1 to 6/15 (40 head). Prior to 1973 the grazing preference was 137 AUMs, which was reduced to the current 60 AUMs just before the 1973 grazing season - a 56% reduction. This cut was apparently based on a 12/11/72 recalculation of the estimated grazing capacity (not a formal range survey) done in preparation for re-issuance of the grazing lease in 1973. There has never been any authorized exchange-of-use "credit" for the private lands that lie adjacent to the BLM. Historical grazing use is discussed more fully in the narrative for Standard 1.

Prior to 1989, the season-of-use was longer than the currently authorized grazing period. Specifically, from 1975 -1988 the season was 4/16 to 7/15 (with a few yearly variations), from 1970 to 1974 there was no lease or billing defined season-of-use, and prior to 1970 the leases were issued for a full year. The pre-1975 authorizations essentially allowed for season-long grazing, i.e. from initiation of spring green-up until the late fall snow drove the cattle off the mountain. However, information in the files indicates that the cattle were often removed from the area between mid-July to early September. For example, an August 1952 memorandum to the files from George Lea (BLM Range Conservationist) notes that "*...the present use consists of approximately 45 head May 1 to September 1.*" (This would be 180 AUMs.) The history of the past grazing use and conditions of this allotment will also be discussed in more depth under Standard 1. The 1995 KFRA Record of Decision and Resource Management Plan (ROD/RMP) recommended a 5/1 to 7/1 season of use in order to improve resource conditions and meet allotment objectives. As noted above, the season of use at that time was already shorter, i.e. 5/1 to 6/15.

The ROD/RMP (page H-1) states that "*All changes to...livestock grazing management will be made through the monitoring and evaluation process...*" Though a small, low priority allotment, a small amount of monitoring information has been collected because of past grazing concerns. This Assessment will be an evaluation of all existing information - including recent observations - to determine if current livestock grazing management is meeting resource objectives.

This allotment had four "Identified Resource Conflicts/Concerns" noted in the ROD/RMP (Appendix H, page H-25) which will each be addressed, implicitly or explicitly, by one or more of the 5 Standards in this Assessment. It is unusual for a "C" category allotment to have multiple resource issues articulated in the plan, though this reflects the general level of attention being paid to Stukel Mountain during the 1980's and early 1990's, just prior to RMP preparation. The conflicts/concerns and related "Management Objectives" are as follows:

Identified Resources **Conflicts/Concerns**	**Management** **Objectives**
Under current management the range condition, level or pattern of utilization, and/or season-of-use may be unacceptable; or carrying capacity may be exceeded.	Maintain or improve rangeland condition and productivity through a change in grazing management practices, timing, and/or level of active use.
Big game limited by unsatisfactory habitat condition.	Maintain and improve big game habitat in satisfactory condition
Active erosion occurs in the allotment.	Maintain and improve erosion condition in moderate or better erosion condition.
Riparian or aquatic habitat is in less than good habitat condition.	Maintain and improve riparian or aquatic habitat in

good or better condition.

The allotment was originally ranked as an overall "C" category allotment during the first round of Selective Management classification completed on 9/21/1982. Categorization of grazing allotments has been required by Bureau policy since the early 1980's in order to direct limited manpower and funding to resource problem areas that need it and would benefit most. A brief summary of the categorization efforts follows as it is indicative of relative resource concerns past and present. ("I" or "Improve" allotments have the highest priority resource concerns, "M" or "Maintain" allotments are moderate to low priority; and "C" or "Custodial" allotments are the lowest resource priority, usually due to small size and/or lack of ability to make significant change. See the ROD/RMP Appendix H, pages H-69-70 for further information on the allotment categorization - "selective management" - process.):

1982 Ranking
#1 - Range Condition: Satisfactory ("M" ranking).
#2 - Forage Production Potential: Low potential & present production is near to potential. ("C" ranking)
#3 - Resource Use Conflicts: Limited conflicts or controversy may exist. ("C" ranking)
#4 - Economic Returns: No opportunity for positive economic returns or no developments proposed. ("C" ranking)
#5 - Present Management: Satisfactory or is only logical practice. ("C" ranking)

The following note was made on the rating form in 1982: *"Rec/livestock* (conflicts). *Private land owners resent the public on private land.*" However, on 8/25/89, the range conservationist at the time (Jon Collins) unofficially re-ranked three of the individual categories as follows (his comments in italics):

#1 - Range Condition: Unsatisfactory ("I" ranking). "*Professional Opinion*"
#3 - Resource Use Conflicts: Serious conflicts or controversy exist. ("I" ranking). *"Professional Opinion & range monitoring*"
#5 - Present Management: Unsatisfactory. ("I" ranking). "*Professional Opinion*"

Collins also added the following note to the form - *"Changed to "I" category due to high resource potential in wildlife and recreation that is in conflict with livestock management."* The 1995 KFRA ROD/RMP carried the original "C" category ranking forward.

Land Use Planning: During the early stages of the KFRA RMP process (1990-1991), many grazing allotments in the KFRA were generally evaluated by an interdisciplinary team (IDT) - known at the time as the "mini-core team". For the Hill allotment an assortment of condition issues and concerns were raised at the January 14, 1991 meeting. The pertinent (to this Assessment) resource related issues and concerns from that meeting follow:

> Range Management: There are no problems with utilization, AUMs allotted, or the season of use in this allotment. Utilization is 60%. There have been problems with trespass in the past.
> Wildlife: This area is critical deer winter range. Some of the steeper ground in this allotment could be managed for chukkar.
> Recreation: The aspen exclosure is a potential recreation site and is of concern. Need to increase and improve access to Stukel Mountain; a route is needed as a south entrance to the area.
> Watershed: The stream in this allotment is degraded from historical overuse.
> Realty: Acquire private lands surrounded by BLM lands. Build access road and obtain right-of-way (or other appropriate access) from the highway to our property line, which is approximately 3/4 mile

in distance.
Botany: The Rorippa Federal Candidate 2 species may occur in the vicinity of the drainage.

The lists of resource issues which resulted from these team meetings ultimately led to the creation of the earlier noted allotment specific objectives in the KFRA ROD/RMP, Appendix H. Although these resource concerns add to the body of knowledge for the allotment, several are in discord with the "Conflicts/Concerns" and related "Management Objectives" which were ultimately placed in the plan. Specifically, the grazing and wildlife statements are not consistent with the 1991 mini-core team determination, even though the statements were supposedly derived from those team discussions. In addition, Collins 1989 comment above about "*wildlife and recreation*" conflicts with livestock are not consistent with the mini-core team observation of "*...no problems...*" under "*Range Management*". This Assessment will help clarify these apparent inconsistencies. One final note: the "*aspen exclosure*" noted under "*Recreation*" is not on the Hill allotment, but rather on the neighboring Jeld-Wen (#0822) allotment. That allotment has been recently addressed by a separate Assessment.

Public Use Conflicts: Like all the public lands on Stukel Mountain, the Hill allotment has also experienced chronic "people" problems for decades. These problems were already explained in some depth in the completed Stukel-Dehlinger C. *Rangeland Health Standards Assessment* and will not be fully reiterated here except to note that the problems have been around for a long time and have not gone away.

Additional Assessment Process Notes:

Bureau policy and direction articulates a preference that RHSA's be done at the watershed scale, unless "compelling" reasons dictate a different assessment boundary. Since no watershed analysis is planned for Stukel Mountain, the area allotments will be assessed individually. Since grazing management - and changes to such - must be effected physically at the allotment level and administratively at the permit/lease level, evaluation and assessment at an allotment scale is appropriate and usually unavoidable. Typically, cattle use stops/begins at an allotment boundary fence. This assessment process is also in accordance with current direction and policy guidance, including the recent Rangeland Health Standards Handbook, H-4180-1.

Some of the information discussed under one Standard may be discussed under one (or more) of the other Standards. This is partially due to the same monitoring or observational information being used to address several Standards. The bulk of the monitoring information is discussed in the first Standard because the allotment is upland in nature and the first Standard on upland functionality makes a convenient location for most of the analysis.

The condition or degree of function of an area in relation to the Standards and its trend toward or away from any Standard is determined through the use of reliable and scientifically sound indicators - know as "Indicators of Rangeland Health". The H-4180-1 Handbook defines an "indicator" as: *"Components of a system whose characteristics (presence or absence, quantity, distribution) are used as an index of an attribute (e.g. rangeland health attribute) that are too difficult, inconvenient, or expensive to measure".* Though the Handbook encourages the use of "*...dissimilar indicators...*" for each Standard, there is rarely enough information available to have unique indicators for each Standard. Examples of indicators can include ecological condition ratings, plant cover and productivity, different erosional attributes, and

many other potential ones. In this assessment area there has been some limited grazing related information collected due to its moderate priority status. Thus, there are a few quantitative and qualitative indicators that can be used for this Standards assessment. There are also some studies - most notably utilization - which in itself is not an indicator as defined above, but is a well accepted measurement of a primary environmental stressing agent (grazing) which is linked closely with changes in functionality. The indicators and studies used are explained in the assessment that follows. (Note: The brief description of the Standard in bold, is quoted from the approved *"Standards for Rangeland Health and Guidelines for Livestock Grazing Management for Public Lands Administered by the Bureau of Land Management in the States of Oregon and Washington - August 12, 1997".*)

The "Guidelines for Livestock Grazing Management" comprise a set of concepts to consider when evaluating the current or proposed grazing management of an area against the 5 Standards. To quote the 4180 Handbook, a "guideline" is: "*A practice, method or technique used to ensure that standards can be met or that significant progress can be made toward meeting the standard. Guidelines are tools such as grazing systems, vegetative treatments, or improvement projects that help mangers achieve standards. Guidelines may be adapted or modified when monitoring or other information indicates the guideline is not effective, or a better means of achieving the applicable standard becomes appropriate.*" The actual Oregon/Washington Guidelines for Livestock Grazing Management are included with this assessment, for informational purposes, as Appendix 1.

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STANDARD 1 - WATERSHED FUNCTION - UPLANDS (Upland soils exhibit infiltration and permeability rates, moisture storage and stability that are appropriate to soil, climate and land form.)

> **The primary information/monitoring to be used in evaluating this Standard are the observations from utilization point readings; a recent "Rangeland Health Evaluation Summary Worksheet" prepared at a representative location on the allotment; notes from a recent general inspection of the allotment; miscellaneous information and file notes found in the grazing files; and the application of professional judgement to the information by BLM personnel who have monitored and are familiar with the area. The indicators that this information helps address are: plant cover, litter, composition, production, age class and community structure; level of erosion and overland flow.**

Rangeland Health Evaluation Summary: In June of 2002, this allotment was qualitatively field assessed using the process outlined in Technical Reference 1734-6, "*Interpreting Indicators of Rangeland Health*". This was performed by a small BLM team consisting of two rangeland management specialists and a botanist. A "Rangeland Health Evaluation Summary Worksheet" - a.k.a. Upland PFC (Proper Functioning Condition) - was prepared at a representative grazing use location near utilization point #2. The field visit was documented in a memorandum to the files dated 6/19/02. The pertinent information from that memo is excerpted below:

This allotment does have some minimal monitoring done in the past - primarily 3 utilization reading areas. Beyond that there is little to nothing that addresses vegetation or watershed conditions. An Upland PFC location was picked to represent the unburned (i.e. not recently prescribed burned) but grazed portions of the allotment. The spot picked was near utilization point #2 (section 14, NWSW) approximately 1/3 mile south of Hill pond. The burned areas were not picked to evaluate because though grazed significantly due to proximity to water, they are not representative of the

Upland PFC writeup area on Hill Allotment looking towards Stukel Peak

impacts of cattle since the cause of the ecological suppression is the fire not the grazing. The point of *Rangeland Health Standards Assessments* - for which this Upland PFC is being done for - is to assess the impacts of livestock grazing on land health **not** other impacts to the landscape....The prescribed burning was done 4 or possibly 5 years ago if my memory is correct.

The vegetation at the PFC site is dominated by mountain big sagebrush, bitterbrush, scattered juniper, and bunch grasses. The UTM location of the site is on the Worksheet. The ecological site is likely a Shrubby Loam 16-20" (021XY218OR)....This site was undoubtedly burned during the 1936 fire which torched most of this portion of Stukel Mountain including about all of Stukel peak itself. The majority of Hill allotment was probably burned also.

The conditions at the site are probably high mid seral or possibly low late seral, i.e. somewhere in the 40-55% of PNC range. As a general summary condition statement, grasses were under-represented (1/3 to ½ PNC abundance) and shrubs were over-represented (probably twice PNC levels). Dominant grasses were Sandberg's bluegrass, western needlegrass, with lesser quantities of scattered fescue and other species. Of note was the abundance of young needlegrass plants implying upward trend in grasses. There is some cheatgrass present though not in large abundance. Grazing use on the perennial grasses was generally moderate and appropriate (cattle were just removed in the past week or so judging from the spoor). Bare ground was a bit high for this site reflecting the suppressed grass composition. Juniper is substantially invading the area again as evidenced by none of the trees being obviously older than about 65-70 years (i.e. pre-1936). My estimate is that the area is only 10-15 years from juniper density induced suppression of the shrubs. This is a prime area for juniper control (i.e. hand cutting or shearing).

The Upland PFC rated "Soil/Site Stability" as "slight to moderate" departure from ecological site description parameters; "Hydrologic Function" and "Biotic Integrity" were rated as "moderate" departure from the same baseline. Overall this allotment is thought to still be suffering from the effects of the 1936 fire in conjunction with heavy grazing (sheep, cattle, & horses) during the first 2/3rds of the 20th century. However, the current grazing is just a small fraction of what used to occur and it appears that the vegetation condition trend is slowly upwards. The one worry is the re-invasion of juniper into the big sage/bitterbrush sites.

The process that produces these Worksheets, assesses the current observed conditions against a suitable baseline, typically an ecological site description or ecological reference area, which is defined as follows:

> A landscape unit in which ecological processes are functioning within a normal range of variability and the plant community has adequate resistance to and resiliency from most disturbances. These areas do not need to be pristine, historically unused lands (e.g. climax plant communities or relict areas).

As noted in the narratives above, the pertinent ecological site description (Shrubby Loam 16-20" - MLRA D-21, site number 021XY218OR) was used as a reference area surrogate to for evaluating the upland PFC information. The extensive local field experience of the observers was also an important part of this evaluation. The area was found to have some significant deviation from

estimated reference area functionality for the three major attributes of rangeland health - *Soil/Site Stability*, *Hydrologic Function*, and *Integrity of the Biotic Community*. However, as also noted in the referenced notes, the current grazing pressure is thought to be a minor factor in this condition suppression.

Forage Allocation History: Based on a review of the older grazing files, the section 15 grazing lands in the old Lost River Resource Area (which is now part of the current KFRA) were converted from acres based to AUM based licensing during the 1968-1970 period. (The section 15 lands are essentially all the KFRA administered lands outside of the Gerber Block Grazing District.) Most of these allotments were converted at the ratio of 10 acres equaling one AUM, e.g. a 100 acre lease of BLM lands was now being leased at 10 AUMs. Some allotments, however, were given a more generous grazing use allocation. This includes many of the Stukel Mountain allotments, including Stukel-Hill, which was converted at the ratio of 7 acres equaling one AUM. These conversions were apparently not based on any type of range survey or monitoring information, but were instead converted based on allotment acreage and presumably some knowledge of the forage capabilities of the area in general. Given the elevation and climatic regime of our area (13"-18" precip.) and the vegetation communities that this precipitation can support, a 7 to 10 acres/AUM maximum allocation can be reasonable though in many areas less is warranted if topography, condition, or other factors limit the availability or usability of forage.

Specifically for the Hill allotment, beginning with the 1969 grazing season, the allotment was converted from an acreage based grazing lease (960 acres at $0.0475 per acre) to an AUMs based lease for 137 AUMs (i.e. 7 acres/AUM). This figure was fairly quickly thought to be too high. In December of 1972, a BLM range conservationist named Hill (no known relation to the lessee) prepared a "Grazing Lease Data Worksheet" which estimated the forage capacity at 63 AUMs, which was much less than the then authorized preference of 137. Presumably because of this rating and ongoing observations of utilization, the grazing lease was reduced to 60 AUMs just prior to the 1973 grazing season. The current lease averages 16 acres per AUM for the BLM leased lands. This appears to be a reasonable and conservative allocation figure given the topography and vegetation.

Miscellaneous Historical Information: There is a fair amount of interesting and pertinent historical information to be found in the files that helps explain the conditions found on the allotment today. A brief summary of this information follows, keyed to the dates of the documents referenced.

December 24, 1934: The original application for the public land lease was notarized on this date. It noted that the applicants (Hill Brothers) "*...will graze 300 head of stock cattle, 250 head of sheep and 20 horses on the lands applied for in this lease together with the lands leased by them during the spring and summer when the range permits and at no time will they abuse the range...*" This gives some idea of the numbers of animals that may have been grazing the allotment during the previous unregulated times. The original grazing lease was issued November 23, 1936 for the 960 acres with the yearly fee being a total of $7.67.

April 20, 1937: In a "Confidential" report prepared prior to issuance of the lease, a J.D.C. Thomas, Special Agent for the Department of Interior, noted many items of interest based on an examination of the land "*...during the month of July, 1936...*", which was immediately prior to the previously noted

wildfire. Following are some excerpts from the report (emphasis added):

> *...They* (Hill's) *own about 375 cattle, 250 sheep, and 20 horses. They winter this stock on the home ranch and for the period of about two to three months in early spring, they range their cattle on the public lands applied for...The sheep are kept in a fenced pasture on the home ranch.*
> *...These* ***lands have been open to the public and used by applicants in common with others for many years****...*
> *...The lands are situated on Stukel Mountain. Part of the land is in a basin near the top of the mountain and other parts are in canyons and on rough hillsides. It is very good grazing land. The soil is generally light clay covered with lava rock. There is a scattering growth of Juniper, pine trees, mountain mahogany, bitter brush, plum brush and sage brush.* ***The predominant grasses are wild cheat,*** *and in portions of the land, a fair growth of native bunch grass, also numerous wild plants.*
> *...****Shortly after I examined this land grass fires burned over most of the area and I have been informed that the grass and browse plants were badly burned. The usual reproduction after fire is wild cheat...***
> *...There are no indications of erosion and at the date of investigation the lands did not appear to be over-grazed.*
> *...The carrying capacity of these lands is approximately 5 acres per animal month and the use should be restricted to a period from approximately April 1 to about July 1 and not used again until about October 15.*

This information indicates that, though conditions still appear to be acceptable for the time, some resource problems were evident in the form of wildfire damaging much of the area which already had abundant cheatgrass. A very large number of animals are also still using the public lands in the area.

August 10, 1945: A field visit was made to the allotment by R.G. Sporleder, Field Examiner for the General Land Office out of San Francisco. He stated the following about the south portions of the allotment - *...Evidence of range over utilization was noted, compaction of the soil by trampling of large numbers of stock and the presence of considerable sheet erosion. There was a fair cover of annual cheat grass but very few plants of the native bluebunch wheatgrass was noted, in this, the lower portion of the range...*

There is also file information from this same year that notes that the Hill Brothers owned over 900 head of cattle during the early 1940's. The information implies that at least half and possibly all of these cattle were grazing on the 960 acres of public land for at least for a couple months in the spring during the critical growth period (4/15 to 6/15) every year for many years.

August 16, 1946: Another field visit to the allotment was made again by R.G. Sporleder, now Field Examiner for the newly created Bureau of Land Management. This report has ample information detailing then current grazing problems in the form of vegetation degradation caused by too much livestock use. Here is some of the information with some clarifying information in parenthesis (emphasis added):

> *...The lands above Hill Road...(*south end of the Hill allotment*)...were found to have been heavily utilized. The soil is starting to wash away from the roots of the scattered plants of bluegrass, needle grass and bluebunch wheatgrass...The predominant plant in this area is prickly lettuce* (Lactuca serriola? - a exotic

weed*), which is of slight forage value for all classes of stock before it matures...* ***This lower area was grazed heavily by sheep for many years, which probably contributed to the forage damage****...*

*...the area around the public water reserve in Section 11 (*aspen grove pond*) has been heavy grazed as this is the main source of water for the range east of Stukel Mountain.* ***The sagebrush has been browsed rather heavily, which is not common on ranges being properly grazed****...The tops of the high ridges and rough, rocky sides of the hills have been heavily utilized by* ***horses and cattle****, but there is still a vigorous growth of perennials in existence...The shortage of forage has caused the stock to move farther away from water in search of it, even in the very roughest areas where under ordinary conditions the utilization would be light...*

*...(*a local rancher*) was interviewed in regard to the cattle on the area and the use of the land...(*that rancher*) stated...that* ***Hill Brothers used the area until July 1 of this year and had in excess of 500 cattle*** *on the range unit...*

...The condition of the range at the time of inspection, compared to its condition at time of inspection in 1945, seems to have deteriorated...

*...(*the same local rancher*) remarked that...the range unit was being too heavily grazed and that after the fence was completed they would be in favor of some plan of range deferment to protect the forage on the land...*

...The present use by the two operators is causing an ever declining forage value...the Hill Brothers are turning out too many cattle. The trampling alone of 500 head of cattle on a small area such as they graze upon is doing considerable damage...

August 8, 1952: The lease area was "examined" by George D. Lea, Range Conservationist, on this date; a visit which consummated in an undated "Memorandum for the Case File", which appears to have been prepared shortly after the visit. The memorandum does not state specifically where the observations were made - just somewhere on the leased lands. It did make some pertinent comments about the conditions present at that time, as follows:

...The current use consists of approximately 45 head May 1 to September 1...

...The dominant vegetation is sage brush, cheat grass and two species of blue grass. Other forage plants include blue bunch wheat grass, needle and thread grass, balsam root, Jim-Hill mustard and bitter brush. The range appears to be in very good condition with numerous young blue bunch grass and bitter brush plants.

...There is no timber present on the leased lands ***except for scattered spots of juniper*** *which escaped the fire of 1936...*

...According to the Hill Brothers they did not pay the annual lease for 2 years following the fire of 1936 as they suspended their livestock operations because of the destruction of the feed by the fire...

September 14, 1972: The range conservationist at the time (Hill) made the following "Livestock Grazing" notes to a brief report called "Stukel Mtn. Inventory".

- *Fence between Hill and C. Dehlinger in poor shape.*
- *Cattle are harassed by recreationist (*sic).
- *Cannot keep livestock on lease area.*
- *Early feed usually does not last past July 15th.*
- *Livestock water O.K. Reservoirs need some cleaning.*
- *Trespass cows from Dehlinger side because of poor fence.*

This information indicates several things about the allotments grazing use, but of primary

importance is the chronic drift and trespass problem.

January 9, 1973: Attached to the previously noted December 1972 "Grazing Lease Data Worksheet" is a note that states that *"Hill claims to run 20 cows and 8 horses from 4/15 until 9/30 = 143 AUMs*". This indicates that the allotment was grazed season long prior to the grazing preference being adjusted downwards to 60 AUMs for the 1973 grazing season and the season of use contracted to 4/16 to 7/15 in 1975.

There is also other information in the files which indicates that the chronic drift/trespass problems continued up until the mid to late 1990's, when grazing use was somewhat scaled back on the mountain for various reasons. The history of the allotment can be summarized as follows: Heavy cattle, sheep, and/or horse stocking levels during the early and mid 20th century, season long grazing, and the invasion of cheat grass (*Bromus tectorum*) in hand with the devastating 1936 fire, led to deteriorated ecological vegetation conditions by the late 1940's. This led to slow but distinct decreases in forage capabilities which forced livestock numbers down, culminating in a shortened season-of-use and a 60 AUM preference. Since that time there has been livestock drift/trespass problems which have resulted in periodic overuse of the area - neighboring cattle are attracted to both of the water holes on the allotment. Since the early to mid 1990's there has been limited overuse noted except right at the water holes, which is an unavoidable "cost" of grazing use. Better use supervision in recent years is considered an important factor in reducing trespass related overuse.

Photo Points: There are no formal photo points located on this allotment, though in 1990 and 1991 an assortment of informal (i.e. not permanently staked) view and closeup ground photos were taken at or near several of the established utilization points and the Cole browse study. These photos were apparently taken to provide visual support for the data that was collected. None of these photos have been retaken since the early 90's, though some could probably be relocated if deemed necessary to help show what changes have occurred since originally taken. (See the "Management Recommendations" section.)

Utilization Information: Although the Hill allotment is of a relatively low priority, three use points/zones were established in 1985 stratifying the allotment. Utilization was read a few times during the late 80's and early 90's and checked at points #2 & #3 during the June 2002 field check. Specific acreage figures were calculated for each zone when established in 1985. These zones were used in arriving at an "average utilization" figure for the allotment. Below is the information collected in averaged, summary form:

STUKEL-HILL ALLOTMENT (#0828) - Utilization Information

Year	Average Utilization	Range of Utilization	Actual Use (AUMs)	Growing Conditions	Yield Index (YI)	Desired Use AUMs 3.
1985	75.6%	10-80%	60 1.	Average-	(YI=89%)	45 (40)
1986	80.2%	68-84%	60 1.	Above Average	(YI=129%	29 (38)
1988	74.7%	70-82%	60 1.	Below average	(YI=75%)	54 (40)
1989	73.1%	65-78%	28 2.	Average+	(YI=112%)	18 (19)
1990	57.6%	54-60%	60 1.	Above average	(YI=117%)	45 (52)

1991	73.1%	70-80%	38 **2.**	Below average	(YI=77%)	34 (26)
2002	28% **4.**	0-45%	60 **1.**	Average+	(YI=113%)	95 (107)
				Average Desired Use (AUMs) =		46 (46)

1. Licensed grazing use. This information, prior to 2002 is of questionable accuracy because of chronic drift problems. Ground checks in 2002 indicate that licensed use was an accurate reflection of actual use.
2. Actual use information, though accuracy is questionable. See #1 above.
3. The figure in parentheses is the Desired AUMs calculated without adjustment for climate with the Yield Index.
4. The 2002 utilization is an average of the use observations at points #2 & #3 which cover about 80% of the allotment area.

"Average Utilization" is the average of the different utilization point readings for that year, with the "Range of Utilization" showing how much the utilization varied by use point. The "Yield Index" is a precipitation based index which allows for an estimate of how much the herbage yield varies from average, i.e. a yield index of 75% indicates that the yearly production was approximately 3/4th of average. It can be thought of as a numerical rating of the growth season and is used to "adjust" the observed average utilization figure to approximate an average year. Grazing preferences are typically based on average year calculations.

As with most monitoring information of this type which has been collected by many people over time, the results can appear inconsistent and disproportionate in comparing one year against the others. This is particularly true for utilization and is the reason that multiple readings are collected over time and averaged; the more time/information the better in arriving at a best estimate of an average livestock carrying capacity. As outlined in BLM Technical Reference 4400-7 and summarized in the KFRA ROD/RMP (page H-73), the following formula may be applied to the utilization data to assist in the setting of a proper stocking level number:

$$\frac{\text{Actual Grazing Use (AUMs)}}{\text{Adjusted Observed Utilization (\%)}} = \frac{\text{Desired Use (AUMs)}}{\text{Desired Utilization (50\%)}}$$

The formula is solved for the missing factor - in this case "Desired Use (AUMs)". Given the ROD/RMP allowable use level of 50% (page H-75), "Desired Use" would be the level of hypothetical grazing use (AUMs) that would have resulted in 50% grazing use for that year. The yearly "Desired Use" is listed in the last column of the utilization table. This is just one of many tools to assist in the determination of proper grazing use and is used along with other studies information (if available), consideration of competing resource uses, etc. as modified by professional judgement.

As noted in the table above the average proper stocking level, based on the 7 years of utilization information, is 46 AUMs whether "corrected" for climate or not. This is 14 AUMs *less* than the current lease maximum of 60 AUMs. However, the most recent utilization check done in 2002 by the author of this Assessment during a relatively average year, indicates that current grazing use is appropriate given the currently adequate ecological conditions on the primary grazing areas. This and other observations made over the past 5-10 years indicate that most of the grazing occurs within about 1 mile of Hill pond in the center of the allotment, with limited grazing usually made in the extreme north or south ends of the allotment. If the current lease maximum (60 AUMs) is divided into the 2/3 rds of the allotment that is used regularly, the stocking rate is effectively about 10

acres/AUM. This would be considered a reasonable level and consistent with the recent moderate use level observations. Though the 2002 figures imply slight "understocking" on average, the large area of proper (moderate) use around Hill reservoir suggests that the current preference is appropriate. If more use were to be allowed, the proper use area would probably become heavy use over an unacceptably large area, particularly in below average precipitation years.


Excellent condition area on east side of the canyon about 1 mile below Hill reservoir which was prescribed burned in the late 1990's

Determination:
This Standard is currently being met.

Recent monitoring and observational information indicates that current conditions on the BLM administered lands are appropriate for meeting this Standard. Because of this, the Standard must be considered met regardless some past grazing history indicating high apparent utilization. The high use levels recorded in the past are clouded by the fact that unknown amounts of unauthorized use/drift was occurring not making it possible to isolate the authorized use. Though more use supervision and lessee changes in recent years seems to have limited this problem, this problem will continue to need monitored closely over time. (See "Management Recommendations" section.)

STANDARD 2 - WATERSHED FUNCTION - RIPARIAN/WETLAND AREAS

(Riparian-wetland areas are in properly functioning physical condition appropriate to soil, climate, and land form.)

> **The primary information, monitoring, and indicators to be used in evaluating this Standard are those listed under Standard 1.**

The only significant riparian/wetland areas on BLM administered lands are as follows: the Pine Creek drainage which laterally dissects the allotment north to south; Hill Reservoir on the Pine Creek drainage in the center of the allotment; and a small amount of the reservoir and "dry meadow" in the north end of the allotment that is shared with the neighboring Jeld-Wen allotment. Both of the reservoirs were created specifically for livestock watering, and as such, are fulfilling their intended purpose. Heavy use is common within a short distance (100-200') of these ponds, but this is a inevitable fact of life for livestock watering facilities.

Pine Creek is an intermittent or ephemeral drainage which has limited riparian characteristics; i.e. it is dominated by "wet upland" herbaceous species like single-spike oatgrass (*Danthonia unispicata*) and

shrubs like chokecherry (*Prunus virginiana*). The previously noted (page 3) "mini-core team" notes, had the following statement: *"Watershed: The stream in this allotment is degraded from historical overuse"*. This may be true relative to past grazing use, though currently most of this intermittent drainage is unused due to its narrow, rocky, and steep character. The ½ mile or so of this drainage south of Hill Reservoir does receive periodic heavy use, though the channel is well armored and highly resilient to grazing pressure. It appears that the drainage was permanently eroded to bedrock many decades ago by a mix of excessive grazing, the road location (often right in the drainage - see picture above), and probably the post-1936 wildfire impacts. The drainage appears to have little potential to improve.

Drainage bottom in the south central portion of the Hill Allotment showing old road running down the center.

There are also short stretches of other ephemeral hillside drainages that feed off the surrounding ridges into the Pine Creek draw. These drainages are in steep slope areas with limited potential for significant grazing pressure. Field observations indicate that these drainages are in acceptable condition and of little resource concern at this time.

Determination: ***This Standard is currently being met.***
Similar to the determination for the first Standard, Standard 2 must be considered met at this time on the Stukel-Hill allotment. However, periodic monitoring of the Pine Creek drainage would be useful to ensure that unacceptable resource problems are not occurring. (See "Management Recommendations" section.)

STANDARD 3 - ECOLOGICAL PROCESSES (Healthy, productive and diverse plant and animal populations and communities appropriate to soil, climate and land form are supported by ecological processes of nutrient cycling, energy flow and the hydrologic cycle.)

> **The primary information, monitoring, and indicators to be used in evaluating this Standard are those listed under Standard 1.**

Since the allotment is virtually all upland in nature, the analysis and information listed under Standard 1 is the basis for the determination under this Standard. Most important of this information, the Upland PFC determination found some moderate divergence from estimated reference area functionality for the three major attributes of rangeland health - *Soil/Site Stability*, *Hydrologic Function*, and *Integrity of the Biotic Community*. Though qualitative in nature, the Upland PFC

determinations provide an indication that ecological processes are likely operating properly at this time, but with some resource concern. Specifically, the latter attribute (*Integrity of the Biotic Community*) was determined to be on the high end of the "moderate" departure from reference area functionality. This largely reflects the lingering effects of the 1936 wildfire and past overgrazing, though may indicate some current grazing concerns. Periodic future monitoring and use supervision is important to ensure that overuse does not occur regularly, i.e. does not occur at a frequency and/or level which causes irreversible resource damage. (See "Management Recommendations" section.)

One further ecological issue needs some discussion: western juniper (*Juniperus occidentalis*) and its place in the ecosystem of Stukel Mountain. Most portions of the Klamath Basin, above the valley floor and below about 5500', have been experiencing varying degrees of the "juniper problem". This includes juniper encroachment into vegetation communities - particularly big sagebrush - that previously had little to no juniper and significant density increases in areas where juniper was and should be present, though in lesser quantity. Though a native plant, in the absence of fire (a function of increased suppression and grazing related fine fuels reduction) and with the stimulus of livestock grazing reducing shrub and grass competition, juniper can increase to the point that the vegetation community is almost a juniper monoculture. This results in diminished habitat capabilities for most native wildlife species, dramatically reduced forage production for all grazing animals, and frequently an environment conducive to the invasion of undesirable exotic plants.

On the Hill allotment juniper increases have been and continue to be an ecological condition issue, particularly in the mountain big sagebrush/bitterbrush communities (*Artemisia tridentata* ssp. *vaseyana* and *Purshia tridentata*, respectively) and mountain mahogany (*Cercocarpus ledifolius* and *C. montanus*) sites. The 1936 fire apparently destroyed most of the juniper on the allotment, though the trees are making a strong comeback (picture to right). In particular, the big sagebrush areas within a mile or so of Hill Reservoir are now at the point where the juniper is dense enough to begin crowding out the understory. In fact, the recent visit to the allotment found ample evidence of dead shrubs mixed in with the living sagebrush and bitterbrush this area. Juniper is abundant throughout this area, though not dominant as yet. The area still has a fairly healthy stand of shrubs, but is estimated to be 10-15 years from a serious shrub component collapse.

West side of canyon showing juniper encroachment into 1936 burn area. Top of mountain in background is a more recent burn on the neighboring allotment (Coffin).

Portions of the slope immediately to the east side of the Pine Creek canyon were prescribed burned in the late-ish 1990's (see picture at beginning of this Assessment). That burning did kill a lot of the younger juniper (<60-70 yrs old) but aggravated the cheatgrass and rabbitbrush (*Chrysothamnus*

naseosus and *C. viscidiflorus*) problem. June 2002 observations indicate that within the prescribed burn area, the cheatgrass in the burned spots was 2-3 times more abundant than the unburned areas. Rabbitbrush was also several times more abundant in the burned areas. Though covering maybe 50% of the east slope of the Pine Creek drainage, this recent burning only amounts to 10-15% of the allotment, leaving the majority untouched. It is probably likely that, like after the 1936 fire, ecological conditions (as defined by the pertinent ecological site descriptions) will improve so that natives will once again dominate the burned area, albeit slowly. In summary, the big sagebrush/bitterbrush areas on the allotment are currently in need of mechanical or manual juniper control; see the "Management Recommendations" section at the end of this Assessment.

Determination: ***This Standard is currently being met.***
As with the determination for the first Standard, Standard 3 must be considered met at this time on the allotment. See Standard 1 for the data, evaluation and determination information that is pertinent to this Standard. The juniper encroachment issue looms as a ever increasing problem, but is being aggressively addressed as a fuels reduction issue in the KFRA.

STANDARD 4 - WATER QUALITY (Surface water and groundwater quality, influenced by agency actions, complies with State water quality standards.)

There are no listed quality impaired waters within or closely adjacent to this allotment. All of the allotment drainages are widely disconnected from the nearest water body of concern - the Lost River - by variably developed private lands and irrigation canals. The Lost River is a State of Oregon 303(d) listed water for an assortment of recognized water quality problems. Grazing on this allotment is not thought to have any effect on the water quality of the Lost River - good or bad - though conceptually the currently adequate vegetation conditions on BLM administered lands are likely a positive factor in inhibiting excessive run-off and sedimentation. The lands on and around the Lost River to the south of the allotment (mouth of the Pine Creek canyon) are all private and have an array of other impacting and disturbance factors that variably contribute to water quality problems: dense roads, alfalfa and potato farming, houses, ranches, intensive livestock pasturing, a web of irrigation ditches and canals, etc.. Outside of the cattle grazing and a few primitive roads on the BLM lands, none of these impacting activities are within BLM purview. Since the vegetation communities have been estimated to be at least adequately functional, the cattle grazing on the Stukel-Hill allotment is thought to be a non-issue in the overall water quality concerns.

Determination: ***This Standard is currently being met (or is not applicable).***

STANDARD 5 - NATIVE, T&E, and LOCALLY IMPORTANT SPECIES (Habitats support healthy, productive and diverse populations and communities of native plants and animals (including special status species and species of local importance) appropriate to soil, climate and land form.)

> **The primary information, monitoring, and indicators to be used in evaluating this Standard are those listed under Standard 1.**

Animals: The previously mentioned "mini core team" process during 1990-91 identified one specific concern related to wildlife for this allotment. It was as follows: *"Wildlife: This area is critical deer winter range..."* Based on this concern, the KFRA ROD/RMP listed one big game habitat "Identified Resource Conflict/Concern" and related "Management Objective" - see page 2. This objective indicates the importance of the area as at least critical habitat for deer, though a myriad of wildlife species are supported in part by the area. In the Klamath Basin, Stukel Mountain is situated like an "island" of largely undeveloped wildlands within a "sea" of developed private agricultural lands. The BLM lands on the mountain (almost ½ of the area) - though not in pristine condition - could be considered as reservoirs of comparatively stable, good condition lands in an area with the potential for drastic change due to its dominant private status.

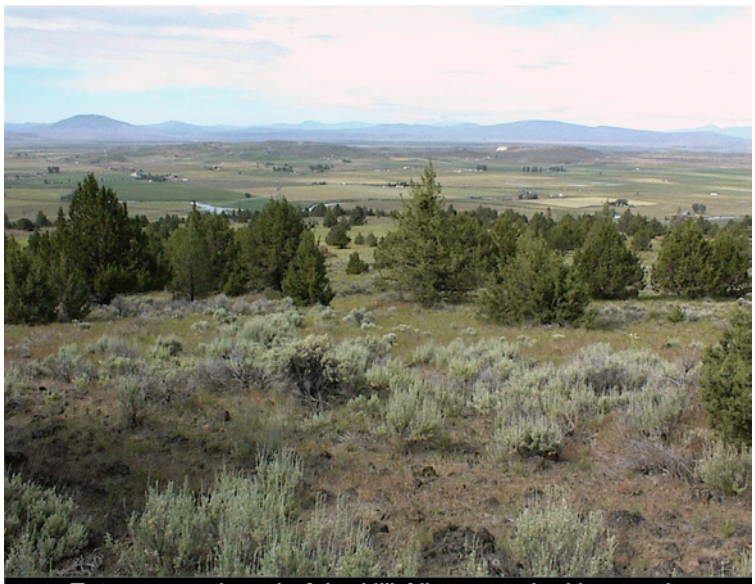
In this allotment, there were a couple Modified Cole Browse utilization transects established and read on serviceberry (*Amelachier alnifolia*) in 1990-1992 on the west central edge of the allotment just off the road to the radio towers. In fact, an exclosure was constructed (at that time?) to allow a comparison between areas grazed and not grazed by livestock; the fence was short enough for deer to jump over. Nothing of substance can be interpreted from the information due to inconsistency between different readings and incomplete information. However, it appears that grazing use in the area of the study was generally light by both deer and cattle. This is not surprising as it is a steep slope area with very thick brush limiting access. These studies have not been re-read since 1992 because of no perceived resource problems and competing priorities. The mid-June off date for livestock is early enough in the season so that competition for browse (more of a late summer bovine inclination) appears non-existent. The juniper encroachment issue, as discussed under Standard 3, is also a wildlife habitat issue and of much more importance. No special status animal species are known to exist on this allotment

Plants: No special status plants are known to exist on the allotment. The 1990-91 "mini-core team" notes did include the following statement: *Botany: The Rorippa Federal Candidate 2 species may occur in the vicinity of the drainage.* However, there has been no Columbia cress recorded on the allotment to date. This allotment was completely surveyed for special status vascular plants and noxious weeds in 1997 under a botanical contract. As a result of these surveys, four known noxious weed sites were discovered on BLM administered land. These four sites consist of two different weed species, spotted knapweed (*Centauria maculosa*), and scotch thistle (*Onopordum acanthium*). The spotted knapweed site is located in the middle part of the allotment and consists of approximately 40 plants. This site has been eradicated since it's discovery. There are three documented scotch thistle sites; two small populations (approx. 11 plants total) in the central part of the allotment, and one in the northern part of the allotment, above the Aspen Exclosure. The latter site consisted of one plant which was pulled when discovered and has not been seen since. The other two sites have been chemically treated annually, but both still persist. The treatment of these sites will continue in the future.

Determination: ***This Standard is currently being met.***
As with the determination for the first two Standards, Standard 5 must be considered met at this time on the allotment. See Standards 1 and 2 for the data, evaluation and determination information that is pertinent to this Standard. (See "Management Recommendations" section).

* * *

Management Recommendations:


Extreme south end of the Hill Allotment - looking south.

Although this Assessment has indicated that current conditions and stocking levels on the allotment are likely appropriate, past monitoring and observational information indicates that the potential for resource problems may still exist depending on cattle drift/trespass from adjacent areas, drought, burning activities, and possibly other environmental pressures. A basic disadvantage with the management of most section 15 allotments is the highly fragmented nature of the public lands which severely limits the opportunity for, and potential effects of, unilateral resource management actions. In other words, we must work cooperatively with the adjacent landowners - typically the grazing lessee - in making any substantive changes in the area, grazing or otherwise. Even with up-front cooperation, making and maintaining changes on fragmented public lands over the long-term is difficult because of frequent lessee turnover, private (and sometimes public) land sales, higher resource priorities on the more contiguous public land areas, poor fencing, and poor access and resulting limited use supervision. The basic nature of section 15 public land parcels is a resource management problem, in that they are the poorest (steepest, rockiest, driest, lowest production, etc.) lands in the area that have remained in the public domain because they were never desired during past land disposal eras, though are now often surrounded by private/patented lands.

Regardless of the limitations, a few management changes are recommended to minimize future problem potentials and to assist or accelerate condition improvements. Though not expected, if chronic overuse becomes a problem again, re-assessment of the allotment may be necessary and further definitive actions taken. This could be either by formal agreement (43 CFR 4110.3-3) or the issuance of a grazing decision (43 CFR 4160) - both of which would entail changes to the grazing lease. The recommended management is as follows:

1. Rangeland monitoring studies will continue to be collected periodically on the allotment. A specific schedule should be developed and added to the KFRA Monitoring Plan. This could includes the reading of the utilization (points and mapping as necessary) every three to five years, re-reading of the established Cole Browse studies if necessary, and possible relocating and retaking of some of the view photos. The establishment of a photo trend plot could be pursued dependent on other priorities and available manpower, but would be of a low priority on this allotment.

2. As in the past, yearly use supervision will also take place to ensure that the grazing use is within approved parameters, that drift/trespass is not occurring or is stopped quickly if discovered, and to provide early warning of possible excessive (resource damaging) use. A minimum of one yearly use

check should be made in late May or early June. If overuse looks likely to occur before the licensed grazing use expires, the lessee would be asked to move their cattle early. Use supervision is important to ensure that unauthorized use does not occur; a past problem that was noted frequently in the files.

3. Juniper treatment (density reduction) should be undertaken within vegetation types where young western juniper (<75 years old in this previously burned allotment) is encroaching or increasing beyond the ecological site description defined normal range of variation. Of particular importance would be the removal of most/all trees from any of the mountain big sagebrush, mountain mahogany, and bitterbrush potential ecological sites, which are common on the allotment.

4. The KFRA ROD/RMP recommended a longer season-of-use than is currently authorized. Specifically, that plan listed a 5/1 to 7/1 season versus the currently leased season of 5/1 to 6/15. Since the yearly grazing use is usually appropriate and the utilization on shrubs (primarily bitterbrush) is light now, there is no need to extend the season-of-use beyond that currently leased. It recommended that land use plan "maintenance" be done to affirm the current lease season-of-use and update the planning documents.

5. Klamath Falls Resource Area has a very proactive weed program which includes inventories and site treatments that consist of biological, chemical, and manual treatments. The treatment efforts are to contain weed sites, reduce population size, and eradicate weed sites where possible. This effort will continue to be pursued on this and all grazing allotments in the KFRA.

6. The ½ mile of the Pine Creek drainage below (south of) Hill Reservoir, which receives periodic heavy grazing use, could be exclusionary fenced if this portion of the drainage is deemed important enough to protect. Currently this drainage is of a low priority in comparison to other creeks and drainages in the KFRA. This fencing would also be difficult to build due to slope and rockiness and would be high maintenance because of public use and winter snow loads. At this point in time it also appears that there is little to salvage or improve on this short stretch of the drainage as it has only a modicum of riparian characteristics or values. The remainder of the drainage to the south is largely inaccessible to livestock, steep and rocky, and of little resource concern.

* * *

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Determination

(X) Existing grazing management practices and/or levels of grazing use (i.e. potential grazing use as per RMP) on the Stukel-Hill (#0828) allotment promotes achievement or significant progress towards the Oregon Standards for Rangeland Health and conform with the Guidelines for Livestock Grazing Management (Appendix 1).

( ) Existing grazing management practices and/or levels of grazing use (i.e. potential grazing use as per RMP) on the Stukel-Hill (#0828) allotment will require modification or change prior to the next grazing season to promote achievement of the Oregon Standards for Rangeland Health and conform with the Guidelines for Livestock Grazing Management.

/s/ *Teresa A. Raml* 9/25/02

Manager, Klamath Falls Resource Area Date

APPENDIX 1

Guidelines for Livestock Grazing Management

Guidelines for livestock grazing management offer guidance in achieving plan goals, meeting standards for rangeland health and fulfilling the fundamentals of rangeland health. Guidelines are applied in accordance with the capabilities of the resource in consultation, cooperation, and coordination with permittees/lessees and the interested public. Guidelines enable managers to adjust grazing management on public lands to meet current and anticipated climatic and biological conditions.

General Guidelines

A. Involve diverse interests in rangeland assessment, planning and monitoring.

B. Assessment and monitoring are essential to the management of rangelands, especially in areas where resource problems exist or issues arise. Monitoring should proceed using a qualitative method of assessment to identify critical, site-specific problems or issues using interdisciplinary teams of specialists, managers, and knowledgeable land users.

Once identified, critical, site-specific problems or issues should be targeted for more intensive, quantitative monitoring or investigation. Priority for monitoring and treatment should be given to those areas that are ecologically at-risk where benefits can be maximized given existing budgets and other resources.

Livestock Grazing Management

A. The season, timing, frequency, duration and intensity of livestock grazing use should be based on the physical and biological characteristics of the site and the management unit in order to:

   a. provide adequate cover (live plants, plant litter and residue) to promote infiltration, conserve soil moisture and to maintain soil stability in upland areas;
   b. provide adequate cover and plant community structure to promote streambank stability, debris and sediment capture, and floodwater energy dissipation in riparian areas.
   c. promote soil surface conditions that support infiltration;
   d. avoid sub-surface soil compaction that retards the movement of water in the soil profile;
   e. help prevent the increase and spread of noxious weeds;
   f. maintain or restore plant communities to promote photosynthesis throughout the potential growing season;
   g. maintain or restore plant communities to promote photosynthesis throughout the potential growing season;
   h. promote soil and site conditions that provide the opportunity for the establishment of desirable plants;
   i. protect or restore water quality; and

j. provide for the life cycle requirements, and maintain or restore the habitat elements of native (including T&E, special status, and locally important species) and desired plants and animals.

2. Grazing management plans should be tailored to site-specific conditions and plan objectives. Livestock grazing should be coordinated with the timing of precipitation, plant growth and plant form. Soil moisture, plant growth stage and the timing of peak stream flows are key factors in determining when to graze. Response to different grazing strategies varies with differing ecological sites.
3. Grazing management systems should consider nutritional and herd health requirements of the livestock.
4. Integrate grazing management systems into the year-round management strategy and resources of the permittee(s) or lessee(s). Consider the use of collaborative approaches (e.g., Coordinated Resource Management, Working Groups) in this integration.
5. Consider competition for forage and browse among livestock, big game animals, and wild horses in designing and implementing a grazing plan.
6. Provide periodic rest from grazing for rangeland vegetation during critical growth periods to promote plant vigor, reproduction and productivity.
7. Range improvement practices should be prioritized to promote rehabilitation and resolve grazing concerns on transitory grazing land.
8. Consider the potential for conflict between grazing use on public land and adjoining land uses in the design and implementation of a grazing management plan.

Facilitating the Management of Livestock Grazing

1. The use of practices to facilitate the implementation of grazing systems should consider the kind and class of animals managed, indigenous wildlife, wild horses, the terrain and the availability of water. Practices such as fencing, herding, water development, and the placement of salt and supplements (where authorized) are used where appropriate to:

    a. promote livestock distribution;
    b. encourage a uniform level of proper grazing use throughout the grazing unit;
    c. avoid unwanted or damaging concentrations of livestock on streambanks, in riparian areas and other sensitive areas such as highly erodible soils, unique wildlife habitats and plant communities; and
    d. protect water quality.

2. Roads and trails used to facilitate livestock grazing are constructed and maintained in a manner that minimizes the effects on landscape hydrology; concentration of overland flow, erosion and sediment transport are prevented; and subsurface flows are retained.

Accelerating Rangeland Recovery

1. Upland treatments that alter the vegetative composition of a site, like prescribed burning, juniper management and seedings or plantings must be based on the potential of the site and should:

a. retain or promote infiltration, permeability, and soil moisture storage;
b. contribute to nutrient cycling and energy flow;
c. protect water quality;
d. help prevent the increase and spread of noxious weeds;
e. contribute to the diversity of plant communities, and plant community composition and structure;
f. support the conservation of T&E, other special status species and species of local importance; and
g. be followed up with grazing management and other treatments that extend the life of the treatment and address the cause of the original treatment need.

2. Seedings and plantings of non-native vegetation should only be used in those cases where native species are not available in sufficient quantities; where native species are incapable of maintaining or achieving the standards; or where non-native species are essential to the functional integrity of the site.

3. Structural and vegetative treatments and animal introductions in riparian and wetland areas must be compatible with the capability of the site, including the system's hydrologic regime, and contribute to the maintenance or restoration of properly functioning condition.